

REQUEST FOR RECONSIDERATION

Claims 5-12 and 14 are pending in this application. Claims 5, 7 and 8 are independent.

Applicants thank the Examiner for the indication that Claim 14 would be allowable is rewritten in independent form and that Claim 7 is allowed. Final Rejection at sections 5-6. However, for the reasons given below, Applicants respectfully submit that all of the pending claims are allowable.

The present invention provides a method for producing a ceramic sheet having a uniform surface quality and a decreased number of defects.

Claims 5-6 and 8-10 are rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,001,761 ("Hata-761"). In addition, Claims 11-12 are rejected under 35 U.S.C. § 103(a) over Hata-761.

Hata-761 discloses a method for producing a ceramic sheet in which during calcining a green sheet is interposed between porous sheets or underneath a porous sheet. Hata-761 at column 4, lines 28-48. To prevent defects in the calcined ceramic sheet, Hata-761 requires that the periphery of the green sheet not protrude from the porous sheets. Hata-761 at abstract; column 10, lines 11-42.

Regarding the green sheet that is calcined into the ceramic sheet, Hata-761 discloses:

In carrying out the methods of the present invention, a ceramics green sheet is interposed between porous sheets ..., or the same porous sheet is placed on the green sheet ..., and calcined.

.... This green sheet is calcined in the conditions described above. The material for the ceramics raw material powder used for producing the above green sheet is as described above. In producing the green sheet, preferably used is powder in which the **average particle diameter is 0.1 to 0.5 μm** and the particle diameter is **uniform**. Hata-761 at column 7, lines 36-58.

Regarding the porous sheet(s), Hata-761 discloses

[P]articularly preferred as this porous sheet is a porous sheet obtained by calcining a green sheet so that the bulk density becomes 30 to 85% of the theoretical density, the green sheet being obtained by molding a slurry containing powder having **average particle diameter of 2 to 100 μm** and a binder into a sheet. Hata-761 at column 4, lines 56-61.

Materials and production methods for the porous sheet having the bulk density as described above are not specifically restricted. A slurry containing the *same* inorganic powder as that exemplified as a raw material for producing a ceramics green sheet, an organic or inorganic binder, and a solvent is used to obtain a green sheet, and thereafter this green sheet is calcined adjusting calcining conditions so that the bulk density falls within the preferred ranged described above, whereby the porous sheet can be obtained. In this case, the use of powder having **average particle diameter of 2 to 100 μm** , preferably 30 to 80 μm as the inorganic powder readily provides a porous sheet having bulk density falling within the preferred range described above. Hata-761 at column 12, lines 8-20.

Because the average particle diameter of the particles used in green sheet that is calcined into the ceramic sheet ranges from 0.1 to 0.5 μm , while the average particle diameter of the particles used in the porous sheet(s) is in the different range of from 2 to 100 μm , Hata-761's disclosure that the "same" inorganic powder can be used in both the porous sheet(s) and the green sheet that is calcined into the ceramic sheet cannot mean that the particles in both sheets have the same geometry. Thus, Hata-761's disclosure that the green sheet that is calcined into the ceramic sheet contains particles having a "uniform" diameter (e.g., spherical) is not a disclosure that the porous sheet contains spherical particles.

Hata-761 is silent about the shape of the particles in the porous sheet. Hata-761 fails to suggest calcining green sheet between or under porous sheet spacers containing "spherical" ceramic particles having an average particle diameter of 0.1 to less than 5 μm .

Thus, Hata-761 fails to suggest the independent Claim 5 limitation that "each of the spacers is a calcined sheet comprising *spherical* ceramic particles having an average particle diameter of 0.1 to less than 5 μm as a main component" or the independent Claim 8 limitation that "each of the spacers is either a second green sheet or a calcined sheet each comprising

spherical ceramic particles having an average particle diameter of 0.1 to less than 5 μm as a main component". If the spherical ceramic particles in the spacers have an average particle diameter of less than 0.1 μm , it is hard to handle them. If the ceramic particles in the spacers have an average particle diameter of 5 μm or larger, they are likely to damage the surface of the green sheet that is calcined into a ceramic sheet. Specification at page 17, lines 11-15.

Any *prima facie* case for the obviousness of Claims 5 and 8 based on Hata-761 is rebutted by the significant decrease in surface defects that is achieved by the present invention in green sheets calcined between spacers containing spherical ceramic powder (Examples 1-3: all sections had 3 or fewer defects) relative to spacers with ceramic powder of no definite form (Comparative Examples 1-2: some sections had 5 or more defects). See specification at page 33, Table 1 and page 35, Table 2. Hata-761 is silent about reducing defects in green sheets calcined between or under porous spacers by using spherical particles in the spacers. Thus, any *prima facie* case for the obviousness of Claims 5 and 8 based on Hata-761 is rebutted.

Because Hata-761 is silent about the shape of the particles in the porous spacers, Hata-761 fails to suggest the limitation of Claims 11-12 of spacers comprising spherical ceramic particles where "the spherical ceramic particles have a ratio of a major axis thereof relative to a minor axis thereof of 1 to 3".

Because Hata-761 fails to suggest all the limitations of the claimed invention, and any *prima facie* case of obviousness based on Hata-761 is rebutted, the rejections over Hata-761 should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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